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Edited by WILLIAM HUNTING, F.R.C.V.S.

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HORSE FEEDING.

It is remarkable how few veterinary surgeons possess any clear idea of the principles underlying the feeding of horses. Science is unable to tell us all about the subject, but it has established a good deal of exact knowledge which may be found in Colonel Fred Smith's book on "Veterinary Hygiene" and Professor Warington's "Chemistry of the Farm."

In our issue of February 11th we published a paper read by Professor Woodruff at a meeting of the Central Veterinary Society. The paper was most interesting and instructive, but rather too condensed to be assimilable by anyone wanting in some previous knowledge of the subject. This week we print the report of a discussion on the paper, and it will be noticed that only one speaker really followed the paper closely. Others contributed useful information which was necessary to any wide discussion of "The Economics of the Feeding of Draught Horses." It is our intention to discuss the subject only so far as to indicate its importance and difficulty. Mr. Butters made the remark that—"the more one tried to look into the subject in a scientific way the more complicated it appeared to be." There is a mass of experience all over the world on feeding horses, and it seems contradictory. The majority here look with dread upon barley as a grain for horses, and yet there are whole countries in which it is the only grain used. About thirty years ago British horseowners would have laughed at maize as food for horses, although it had been the chief grain used in America for years. Fifty years ago men struck work because horses were fed on "choppy," *i.e.* hay cut into chaff. Even now there are men who fancy that long hay is more nutritious than cut hay. Prejudice plays a big part in the selection of food for horses, and practical men are a little too inclined to trust to custom and authority.

The science of feeding is still defective. We have lived to see the teaching of Leibig corrected, and to acknowledge the great importance of the starchy elements of food, but there seems to be a tendency to overvalue them in relation to the nitrogenous. It is easy to call an animal a machine and carbohydrates fuel, but the production of heat and energy requires more than fuel. No one yet has determined exactly why such an amount of nitrogenous matter is necessary, but it is certain that it is an important element in food, and that its importance increases with exercise and work. Perhaps in no way has the science of horse-feeding been more assisted than by the work referred to in Professor Woodruff's paper under the heading—Balance of the Constituents of Food. No matter what the gross quantity of food used, unless a certain ratio or balance between the proteids, hydro-carbons, and fats be maintained there is waste. Prof. Woodruff's paper will well repay the trouble of reading again and comparing with the discussion. Every year the scope of veterinary practice is embracing a greater need for knowledge of Hygiene, and feeding is perhaps the most important part of hygiene.

"THE POSSIBILITIES OF HYBRIDISING."

The short article under this heading that appeared in last week's *Veterinary Record* by Mr. John Forbes, together with the photographs, is, I think, extremely interesting.

I hope the author will forgive me when I say that the photographs are a better illustration of the simplicity of the European mind and the duplicity of the Oriental, than they are of the "Possibilities of hybridising."

The explanation is, I think, fairly simple: it may either be a double conception on the part of the mare, *i.e.*, the result of being served by a donkey as well as a horse while in season, or it may be merely a case that she is acting as foster mother to one of the foals. The inclusion of the Jack mule is probably a subtle bit of humour on the part of the "fellah."

I am tempted to enclose another photo, this one of a mule-mare suckling a mule foal. Unfortunately I have no real evidence that the mule mare actually gave birth to this foal. I was given the photo by a non-commissioned officer who assures me that he believes it an absolutely genuine case of the offspring shown in the photo being the progeny of the mule mare. The photo was taken in South Africa.

E. E. MARTIN, Capt. A.V.D.

Army Veterinary School.

Aldershot.

THE VAGARIES OF LIGHTNING STROKE.

Having read with much interest Mr. Smith's article "Lightning Stroke in Animals," I feel tempted to record my observations on the following, consequent upon a severe thunderstorm which passed over this neighboured a few days ago.

Case I.—At 6.30 a.m. the shepherd saw his flock consisting of ewes and lambs; a terrific thunderstorm took place about 7-30, shortly after which the owner was acquainted with the fact that a number of his sheep were dead. The lightning had struck a solitary elm tree growing in a corner of the field, a barbed wire was fixed to this tree and extended right and left along a hedge top to the extent of four or five hundred yards. Six sheep and lambs were found dead to the left of the tree immediately under the wire, which was raised about 4 feet from the ground; three were found to the right. One ewe was lying 300 yards from the tree. The current had evidently passed along either wire and at one end of its point of exit to the earth had shattered the post to which it was fixed.

Case II,—Three ewes found dead in the middle of a field after a thunderstorm, appearing the evening before in perfect health.

Case III.—A milch cow an hour after the thunderstorm was found in a field by herself looking dull and stupid, with cardiac palpitation, the sound of which could be heard some yards away. The patient was also extremely excitable when moved or touched and over the sacral regions were patches of burning, the hair on the back was also much singed.

Case IV.—Cart horse in constant work was turned out to grass the night previous in usual health, but was found some hours after the storm to stagger and roll during locomotion; for want of a better term I entered it in my case book as "locomotor ataxia" due to lightning shock.

Cases III. and IV. recovered.

Post-mortem lesions of cases I. and II compared unfavourably with the orthodox teaching on this subject, for example, *rigor mortis* was most pronounced in each case and was of long duration, no decomposition, twelve hours after death, was noticeable although considerable tympany was present; the blood in some of the superficial veins was liquid, but in the visceral vessels considerable clotting had taken place, in every instance the heart cavities contained blood clots which invariably extended into their respective vessels. Three ewes showed depressed marks on the skin over the loins, all had patches of subcutaneous vascular engorgement. The internal organs appeared normal in each save for an occasional pulmonary hypostasis. In each regurgitation of food had taken place, as witness the nasal discharge of ingesta, and in three cases rectal hæmorrhage was noticed.

In no case did the wool appear singed, not even, strangely enough, in those animals showing cutaneous bruisings. A microscopical examination of the blood which had been previously obtained through ligaturing the vena cava carefully wrapped in cotton wool to retain the heat, showed the red cells with crenated edges, while the colouring matter seemed to be dissolved, giving the cell a very pale aspect. Several slides were examined, and a visible dearth of white cells was noted.

Conclusions.—With the exception of the singeing and the probable cutaneous scorching of the tissues, there are probably no other lesions diagnostic of death from lightning shock. If, however, the practitioner is called in to investigate a case, especially when more than one death has occurred, with the history of a thunderstorm, and upon macro- and microscopical examination no other highly fatal disease such as anthrax, blackwater, or acute poisoning is present, one may safely conclude the cause of death to be lightning shock.

The questions may here be asked, why is it *rigor mortis* is absent in some and present in other cases, why decomposition is pronounced in this and absent in that, why the blood is pronouncedly fluid in one and absent in the other? Can the explanation be found in the supposition of the body being charged with negative electricity at one time and positive at another.

W. Scott, F.R.C.V.S.

Bridgwater.

GREEN FODDER AND THE SEVERITY OF STRANGLES.

According to the recent Report of the Veterinary Department of the German Army, it would appear that horses fed on green fodder suffer from strangles in a severer form than those fed on dry food. It is a well known fact that experienced and practical men rarely turn a conditioned horse out to grass or give it green food unless for some good reason, as it puts it out of condition and makes it soft.

As a rule when horses are fed on green food it is before they have gone through the mill of always contaminated stables, and before they have got acclimatised to their new surroundings. And it would appear reasonable to conclude that horses living on green food and having strangles in a severer form than when living on dry food is because they are not conditioned. It is quite possible and very probable a horse living on dry food has become relatively immunised from a previous attack. Everybody knows when a horse has an elevated temperature he refuses oats, and very often dry hay, whereas he will eat green fodder, bran mash, scalded hay, and sometimes carrots without much enticing. Instinct prompts him that highly nitrogenous and concentrated food is injurious to his well-being when suffering from fever. Oats to him is like meat is to a man when suffering from fever. On the other hand, green food to the horse is like milk is to a man.

If green food be a predisposing factor to a severe attack of strangles one would expect very severe and malignant strangles in young horses out at grass. On the contrary, experience points to the opposite direction; they have it in a much milder form than stabled horses, especially young unseasoned ones recently introduced into stables. It

has been considered by some that the reason young and freshly stabled horses have it in a severer form than those out at grass is because of the oats given them for the first time and not being used to them.

HYGIENIST.

THE EXPERT AND THE COUNTER-EXPERT.

The expert is generally called in to advise a client on a particular point and has frequently to protect his client's interest and to assist him. He in fact becomes an advocate. Nobody would call in one as an enemy to his views, or ideas, or interests.

In a legal case of any importance the plaintiff and defendant are usually protected by their legal experts respectively, and who act as advocates. Very often in technical cases the legal experts are assisted by technical experts, who mostly if not always do like the legal expert do—disagree. But there is a difference between the two sets of experts. The judge, belonging to the same profession as the legal experts, does not as a rule cast reflection on the ability or honesty of the legal experts, but frequently does so upon the technical experts. Although the former may differ, and do differ, they can do so, but the technical experts should not differ; at least, the judge, and frequently the legal expert infer that (nay they often do more, they state it openly and tell the jury or public so) experts cannot be believed or no reliance can be placed on their evidence.

No man or no profession or calling is infallible. Still, if we may be allowed to draw a conclusion from some of the utterances from the bench or bar, lawyers infer their profession is. This privileged profession should be chivalrous, and pity those in its power, and not abuse its privilege when it knows it has its prey, in the shape of a technical expert witness, in its power, and who cannot retort to the taunts levelled at the morality of his calling.

If the legal profession were so infallible as it infers it is, why should it require its procedure checked by the public (jury) and its decisions reviewed and perhaps revised by higher courts, and even by the House of Peers, and lastly by the general public.

The mistakes and falsifications made by members of the legal profession frequently entail great hardship, suffering and want, and imprisonment, and even lead to one putting an end to his existence. They are implicitly entrusted by their clients with large sums of money or security which they frequently embezzle. They are trusted by the ratepayers but often charge them for what they have never performed.

Moreover, some judges are not always careful over procedure as shown by wrong convictions and long imprisonment when the prisoners are absolutely innocent.

Therefore lawyers, like all other classes of men, including doctors, veterinary surgeons, clerics, financiers, monarchs, statesmen, soldiers, engineers, architects, scientists, etc., differ, make mistakes, and frequently have rogues in their midst. But they differ from some of other callings, such as that of veterinary surgeons and doctors, inasmuch as their differences make it very expensive for employers, and their falsifications, like those of the financier, accountant, etc., ruin many.

Only the other day a County Court Judge (if we may believe the daily press) contemptuously condemned the horse trade as beset with rogues and liars, forgetting that his own profession was not quite free from that taint.

Horse dealers like other animal dealers are drawn from the same class of men as traders in other things, especially the jam, and antique and modern furniture manufacturers, brewers, etc.. But the horse-dealer's wares, unlike the trader's inanimate wares, are not manufactnred goods, they are Nature's products, which, like the other domesticated animals or man, differ in constitution, and are variable quantities and they, and their maladies and defects, cannot yet be measured with a pair of scales (unless lawyers can do this). The ability, experience and opportunity of practitioners and scientific experts also differ in quantity, and in consequence they must or should differ in giving opinions on their facts. If it is difficult for trained experts to determine the absolute quantity of the animal constitution or ability, how much more difficult must it be to the layman, even if he be a horse-dealer and not a lawyer.

It is different with the trader in manufactured goods, he can make or fake them to order. In the jam trade the public press informs us there are firms who use a machine for the manufacture of fruit seeds or pips out of wood, or pulp out of rotten apples, marrow, etc., to make up jam from. (In pound jars only twelve ounces are put for the British soldier). Glucose is used instead of sugar in the manufacture of this preserve, and also of beer.* In the furniture trade there are firms who stain wood to pass off as genuine mahogany; others keep worm-hole borers; and others buy the interior of old churches and work up the wood into furniture of the Elizabethan age. In the woollen trade they manufacture flannelette which doesn't contain any wool, and use shoddy in the making of cheap cloth. In the police force are men who, instead of "catching" street bookmakers, brothel keepers, etc., give them the tip to look out as they will be raided at such a time.

The uninitiated, if he wish to guard against being taken in, has his remedy. The public pay experts to watch its general interests and to detect the adulteration of food and crime. The individual if he wants to buy a horse and doesn't understand horse-flesh (most men ignorant of it fancy they know all about it) should employ an expert to see that he isn't taken in. He must not expect a Derby

* Brewers become wealthy men greatly at the expense of weak minded individuals, who frequently partake of the adulterated chemically made beer which besots the drinkers and often ruins them in mind, body and estate. Yet the wealthy brewer becomes a millionaire philanthropist, Member of Parliament, or of the House of Peers. Have they a conscience?

winner or a Hyde Park trapper at knacker's price. All those who answer advertisements of a highly coloured nature, respecting horses for sale, in the daily press do. If they don't take an expert's advice they (including judges and lawyers) very commonly get done. But if they get done by a few professional rogues don't let them condemn the whole force (horse trade) as a set of swindlers.

Returning to the question of lawyers. Some police court magistrates have told us they could not believe us as a profession; others trust to their own ability and think they know all about horse flesh, and a few very able men of worldly matters confess their inability and call for a competent man to act as an assessor between the opposing experts and give them his decision to adjudicate upon.

If all men were honest we should require no police or magistrates; if all were moral no clerics, if healthy no doctors; if no fools no rogues; if all wise no experts: and, finally, if there were no difference between men's minds, action, etc., no force or character, and therefore no counter force or opposing character. What a world it would be!

K. K.

ABSTRACTS FROM FOREIGN JOURNALS.

THE STUDY OF DISTEMPER.—By H. CARRÉ, Alfort Veterinary School.*

The reading of numerous works concerning the etiology of this affection, the negative or inconclusive results from inoculation of the various microbes described as the specific agents of *distemper*, and the comparison of certain of the lesions with those that are sometimes found during the course of diseases caused by ultra-microscopic microbes which pass through the filters, have induced me to take up the bacteriology of *canine distemper*.

From the commencement the nasal discharge is frequently virulent. The virulence of this product is sometimes very great; inoculated in the dose of two drops into a young dog, it leads to death in five or six days, *without lesions at the point of inoculation.*

Filtration, through a very porous filter, of the discharge diluted in sterilised water, furnishes a liquid which, inseminated freely in different media, shows itself sterile. Yet this liquid, inoculated into young dogs, produces some very interesting morbid disturbances.

At the end of four days the temperature goes up, it rapidly attains 40 to 40·5 C., and continues raised for two or three days. The animal is not long before it shows coryza, more or less severe, the eyes discharge a watery fluid contaminated with pus. Inflammation spreads more or less rapidly, and with a variable intensity, to the deep respiratory passages. After six to ten days large pustules show themselves under the abdomen, in groins and armpits and on the thighs. The serous or sero-purulent discharge becomes muco-purulent, the animal wastes away considerably and finally dies of broncho-pneumonia.

This sequence of symptoms has been successfully reproduced several times. According to the age and breed of dog and, probably, also according to the quantity of the filtrate inoculated, the reaction to the inoculation is more or less acute. The thermic elevation is never absent; the coryza and eruption of pustules are frequent; a fatal termination is exceptional.

Defibrinated blood of an animal infected with the filtrate inoculated into a "clean" animal produces fever, coryza and pustules. This same blood, freely inseminated on different media gives no culture.

All these experiments were carried out under conditions of isolation so perfect that the results justify me in believing that the virus of distemper belongs to the class of filtrant microbes.—*Revue Generale de Médecine Vétérinaire, p. 321-2, March 15, 1905, No. 54, Tome V.*

(*Note by the Translator.*—These experiments seem to confirm the old inoculation experiments with the pustular discharge, etc., by the late Professor Trasbot, who looked upon "the true distemper" as a variolous disease. He, like Mons. P. Mégnin, always maintained that the English included two distinct diseases under the generic term of distemper. They differentiated "gourme" or the true malady from "la grippe" or contagious pneumonia.)

THE UTILITY OF A FEW NEW REMEDIES TRIED IN THE GERMAN ARMY, 1903-4.

Beer yeast was distributed to a few depôts to try if it had any prophylactic value in the treatment of strangles. It was given to healthy horses for 14 days, but these were afterwards affected in the same proportion as those not having received any. The disease was not mitigated.

Furonculine, a beer yeast product, had no more value.

In one depôt where *levain* (another beer yeast product) and furonculine were administered, the proportion of losses was 2·5 per cent. higher than in another depôt where they were not used.

The *polyvalent strangles* serum was tried on 264 horses as a preventative in doses of 30 to 40 c.c., but not to horses of four years of age at the depôt. Fourteen days after injection the number that became affected was in the same proportion as those not inoculated. The same used as a therapeutic dose (75 c.c.) from the commencement did not modify the course of the disease.

A solution of 2·5 per 100 of *ichtargan*, injected into the trachea of a few young horses, was not continued, as its effect was very slight or *nil*.

Putrid fever, complicating strangles in nine cases, was advantageously treated by *iodovasogen*, 5 to 20 grammes daily in oatmeal water.

Tallianine was injected into the jugular vein in cases of strangles and putrid fever. It was used in doses of 10 to 20 c.c.; in a grave condition a single dose of 30 c.c. was injected without disturbing the animals. The results were excellent. After two or three hours the temperature descended 1 to 1·5°C.,

* A note presented to the French Academy of Sciences, March 6, 1905.

and the animal which before the injection refused all food, now looked out for it. The effect usually lasted 24 to 36 hours. Often a single dose is sufficient for the whole course of the disease.—(*Zeitschrift für Veterinärkunde Des organ für Veterinär Arm.*, Jan., 1905).

H. G.

EASTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

(*Concluded from page 591.*)

Mr. GRAY said he had listened with pleasure to their criticisms which were all the more valuable because they were practical. It was what they had observed rather than imagined. He had written his paper with the object of constructing the unity of origin of these complaints. Although Mr. Mayall called it a French idea it was not Lignières idea. This doctrine was preached more than 150 years ago. If any of them had Osma's book of diseases of the horse, they could gather from it what he had given them in his paper. What he had said in it with regard to influenzal complaints of the horse was true also in regard to the fowl and the dog. No doubt they had all observed different diseases affecting poultry in the farmyard. Some years they saw catarrh or diphtheria, and the fowls had no observable symptoms more than dropped wings, and combs turning black, but they died in a few hours, or they might have chronic diarrhœa, and many of them if they lived long enough wasted away to complete skeletons. All these forms they saw in the horse, especially in large studs kept up by the introduction of fresh animals. Disease was always present where horses were continually being bought and brought in. Prof. Lignières work simply confirmed the old doctrine and did not oppose it. Modern bacteriology did not oppose the old clinical observations, but only gave them a better standpoint. Mr. Mayall said something about ammonium carbonate. Fourteen years ago he was a great advocate of it in the treatment of what was called contagious pneumonia and had given as much as 4½ ounces a day without observing any bad symptoms, and as long as he gave it he never lost a case, though he had a hundred cases in a year, but it was a lot of trouble and he got lazy. He gave it in the form of a bolus and it seemed to stimulate the appetite and keep the bowels in a nice state.

Mr. MAYALL: What about the post-mortems.

Mr. GRAY said he never had a chance of any. He did not think this drug was of any use when the disease was complicated, and there was pus in the chest or thoracic cavity or gangrene in the lungs. Its action was to keep the blood fluid. So long as the blood did not get clotted or coagulated in the lung the case got well. Mr. Shipley said that a chill of itself was of little importance. When he was an assistant in Nottinghamshire a veterinary surgeon had the audacity to clip a horse because it got lame and turned it out in the depth of winter and it never took the least harm. There was other evidence that chills do not cause these diseases, for they were never seen in the Arctic regions and if cold was a cause they would expect to find them there. In this country where an animal had been kept in a warm stable and got an infected germ and then exposed him to a chill, especially after a quick recovery from influenza, it was likely to develop influenza or pneumonia. If there had been no influenza the chill would not have caused any trouble. During the last few years he had observed the deaths of a great many robust men of middle age from 35 to 45. They had had influenza and recovered quickly, gone out in the cold and been dead in two or three days. The cold lowers the vitality and secondary organisms produce virulent action.

As to temperature, he had mentioned a case in which he found 109°, but he was well aware if the temperature was taken after long journeys, it would be found to be high. By non-recovery he meant where a horse might ultimately have to be killed. Periodic ophthalmia he was told by Mr. Willis, of the London General Omnibus Company, was very common in their stables, principally with Canadian and American horses. They did not show many symptoms but suddenly it was found a horse had cataract. Mr. Shipley had said he considered abdominal influenza to be peritonitis, but he did not regard it so because it was under the peritoneum. As an instance he recalled a case of a horse that had been fed and its harness put on, when it was noticed to be blowing and was given a drink, when it dropped dead. He had seen a good many cart horses develop shivering. For some time after purchase they remained perfectly sound and when they developed influenza shivering came on. He remembered going with Mr. Hunting to see a newly purchased harness horse that was sold as perfectly sound. He noticed it was suffering from strangles, and Mr. Hunting said it had already developed shivering. He condemned green food where it was contaminated with infective material, when it was a very serious thing. A veterinary surgeon to whom he was assistant knew nothing about these French theories, but he would not allow green food to go down the mines because he had observed by experience that it had introduced infection. There could not be a better place to carry out experiments than coal mines, because the animals could not be contaminated without one's knowledge. An animal might come into contact and then it could always be traced. They knew how frequent roaring was after influenza and strangles. Iodide of potassium seemed to act as a pabulum in which the germ grew that irritated the nerve centre that governed the vocal apparatus. Mr. Gooch had cited the case of a horse that contracted strangles in a field. The tendency is for a saprophyte to become pathogenic, and once it becomes pathogenic may be conveyed to other animals and communicate disease.

He had seen splints where none but carriage horses were kept, and fifteen horses affected at the same time. It was impressed upon his mind when he came to study these diseases, and he could not help thinking influenza had something to do with splints. When an animal was brought into a stable the means of contamination were greater and the animal was more liable to chill than when it was out in the cold. As to Mr. Santy's references to outbreaks of influenza, it was known from time immemorial that diseases, after a certain period of mildness, all at once become virulent. It was so with all contagious diseases, not only due to bacteria but to animal organisms. Mange may remain endemic in a certain spot for years and all at once become widespread all over the country.

One thing in his paper he wished to correct. He said that prolonged high temperature was generally a fatal sign, but since he read his paper he had observed an outbreak in which no end of animals seemed to have a mild form and then soon recovered, but as soon as they were put to work it was noticed that they were off their feed, with very capricious appetite, and they had a pallid condition of the mucous membrane with a continuous high temperature, but no other symptoms were observed. Possibly it was a lesion that kept up the temperature.

Mr. Mayall said something about septicæmia, but he did not know the meaning of septicæmia. All diseases were septicæmia. There was no special germ of septicæmia. It was a generic term. It all depended upon the germ. If a mild case it confined itself to the part, or if very virulent it produced general disease. There

seemed to be little relation between that germ and those that produce general lesions such as extravasation. The case mentioned by Mr. Santy might be influenza complicated by pneumonia, termed by many contagious pneumonia. He had seen a good deal of it. It seemed confined to certain stables, and generally they saw it in horses from country dealers or from fairs. Such horses coming home with a chill developed pneumonia which seemed a secondary infection gathered from contaminated stables. Purpura he never observed unless connected with strangles or influenza. He had had cases where horses had been at work with purpura, and he had seen a horse taken out of a cart with purpura. These had been mild cases that had been overlooked, but when a secondary complaint had set in attention was attracted to it. In his practice he had noticed these diseases to be less virulent when horses were kept in stalls. Some stables that he went into had separate water troughs for each horse, and there disease seemed much less virulent.

For many years in the treatment of pneumonia he had used a hot water belt, but after a time gave it up. He was not allowed to use mustard because it would deteriorate the value of the animal, as it could not be worked for some time, perhaps two months, and a jobmaster would rather have his horses die than be blemished for two months. He was led to adopt another plan, that of doing nothing but giving the horses plenty of fresh air, rubbing the body well, and feeding them on non-stimulating diet. He had just as much success as when he gave a lot of medicine. Mustard was very valuable in the early stage to cause a swelling, but it was absolutely useless where no swelling was produced. Warm clothing and keeping the body warm appeared to be about the best treatment. Practitioners should give anti-streptococcus serum a trial. Such an authority as the late Prof. Nocard recommended it, and it was well worth trying. By all report it was not much use when suppuration had set in. It must be used early. These curative sera were not of use when the toxin had entered upon the tissues. They must be used when the poison was in the blood. The anti-toxin for diphtheria was condemned by many people, but that was because it was used too late. At the University Hospital 5000 cases were treated in the early stages and not one was lost, showing the value of the early adoption of this modern method of treatment.

It had given him much pleasure to reply to their criticism and he thanked the members for the patience with which they had heard him.

A hearty vote of thanks was passed to Mr. Gray for his paper on the proposal of Mr. Standley, seconded by Mr Gooch.

Fracture of Femur in a Cow.—The R.S.P.C.A.

Mr. Gooch, in presenting a specimen, said that on July 22nd, he was called to an Alderney cow the property of a clergyman, which he saw late in the evening in a field. She had jumped a drain and he found she had a fracture of the femur. She was seven or eight years old, not in calf, not a pedigree animal, and therefore not very valuable. He advised that she should be slaughtered, and the owner apparently acquiesced Two days later an R.S.P.C.A. inspector asked him if he knew of the condition of the cow, and whether he had given an opinion. He said he had, and was asked what advice he gave. He told the inspector that she would have been killed there and then but there was no gun, and the house was some distance, while it was very late. He had the cow made comfortable for the night, he said, and told the owner to call in a butcher next morning. The inspector then told him that another veterinary surgeon had been called in who took a favourable view of the case and undertook to treat it. From that time he heard no more till nine months later, when the inspector called and said the cow was still alive, but he had informed the owner unless he had her slaughtered he should prosecute him for cruelty. The owner agreed to have her killed, and the inspector asked him to make a post-mortem. He drove to the place but found the skin and two hind legs had been taken away. He saw the condition of the carcase and told the inspector to hunt up the missing legs. Next day the inspector brought them to him. The poor beast had been walking about for nine months, and from bearing her whole weight on the opposite leg the articular cartilage and absolutely the head of the bone had been worn away, necrosis of the head of the bone had commenced. It illustrated the methods of the Society for the Prevention of Cruelty to Animals.

A few weeks ago a client of his had a horse with a little eczema on the shoulder, and he was fined 40s. and costs for working it.

The meeting ended with a vote of thanks to the President, after which the members dined together.

Harry P. Standley, *Hon. Sec.*

THE CENTRAL VETERINARY MEDICAL SOCIETY.

An ordinary general meeting of the Society was held at 10, Red Lion Square, W.C., on Thursday, March 2nd, 1905, at 7 o'clock p.m., Mr. E. Lionel Stroud, presiding. There were present: Messrs. A. L. Butters, James Rowe, Geo. C. Lowe, Percy S. Howard, Prof. H. A. Woodruff, C. E. Wells, J. Willett, F. W. Willett, W. Perryman, L. Savournin, R. Porch, Prof. Pritchard, F. W. Wragg, A. Rogerson, J. Douglas, Wm. Macdonald, C. W. Brown, Arthur N. Foster, A. E. Bayley, Frank Mosedale, W. Roger Clarke, and Hugh A. MacCormack, hon. sec.; and as visitors: Messrs. R. Rutherford, Edinburgh; M. Edgar, New Zealand, and Geo. A. Banham.

On the proposition of Mr. Porch, seconded by Mr. Butters, the minutes of the last meeting were taken as read and confirmed.

The Secretary announced the receipt of a letter from Lt.-Col. Blenkinsop that he was sorry at being unable to attend the meeting.

There was also an invitation from the Royal Institute of Public Health for the Society to appoint delegates to attend the forthcoming Conference. On the motion of Mr. Butters, seconded by Mr. Porch, it was resolved that this matter be left over till the next meeting so that it appeared on the agenda.

A letter had been received from Dr. Walter Kidd, M.D., F.Z.S., offering to attend one of the Society's meetings and read a paper on "Variations in the arrangement of hair on the neck of the domestic horse," in connection with the formation of hair whorls, to be illustrated by lantern slides. The offer also enclosed 24 sketches.

On the motion of Mr. Wragg, seconded by Mr. Butters, it was decided to accept the offer.

On the motion of the Chairman, seconded by Mr. Wragg, the Hon. Secretary was instructed to send a letter of condolence to Prof. Hobday on the loss of his brother.

Morbid Specimens.

Mr. F. W. Willett produced a tumour from a fox terrier bitch, weighing herself under 13lb., the tumour weighing 5¼lbs. It was attached to the mesentery. The animal had not eaten anything for three or four days, and was in great pain, so it was decided to destroy it. He made a post-mortem, and took the tumour out. He thought perhaps it was a lymphadenoma, but would like to know if any member could tell him what the character of the tumour was.

Mr. ROGERSON, in producing a post-mortem specimen, said it consisted of the bones of the off fore foot of a brown gelding, about nine or ten years old. Taking an ordinary survey of the bones they would naturally come to the conclusion that it was simply a case of navicular disease. The most interesting part of the case was that the horse dropped suddenly lame whilst out at work, and so very lame that it had to be carted home in the float. It remained in the same condition for about three months. He blistered the coronet after poulticing the foot. Although there was nothing to account for the lameness except the intense pain which the horse seemed to suffer, it was not able to bear any weight on the leg at all. Not making any recovery or satisfactory improvement it was destroyed. In addition to the disease at the bottom part of the bone there was a deposit round the coronal bone in front, though it was beyond his knowledge to say how it came about. It might have been a fractured surface of the bone caused perhaps by severe concussion. It certainly was not caused by any puncture of the foot by a nail or any other substance. It was a very serious case of lameness, and this was the only post-mortem evidence there was as to the cause of the lameness.

Mr. BUTTERS said that the bone exhibited by Mr. Rogerson was very interesting. As far as he (Mr. Butters) could judge it appeared to him that the mischief began in the tendon. There had been a rupture of the tendon as it passed under the navicular. The rest appeared simply the ostitis which follows severe inflammation of those parts. What position did this limb assume during the lameness. Did the horse elevate his toe, or the reverse?

Mr. ROGERSON replied that the knee was flexed. The toe was on the ground, and the heel up.

Mr. FOSTER produced a couple of horse's feet showing a curious case of rupture of the perforatus tendons at their insertion into the second phalanx, this horse was subject to hypertrophy of the thyroid bodies. In reply to Professor Woodruff, Mr. Foster said that the horse had not been unnerved, as the post-mortem showed that the nerves were present.

ELECTION AND NOMINATION OF FELLOWS.

Mr. RALPH BENNETT, M.R.C.V.S., 13, Eastern Road, Romford; and Mr. PERCY C. WOOLSTON, M.R.C.V.S., Bedford, were unanimously elected Fellows of the Society.

The PRESIDENT announced that Mr. ALFRED JOSEPH SEWELL, M.R.C.V.S., London, had been proposed by Mr. Henry Gray, and seconded by Mr. H. M. Singleton.

"THE ECONOMICS OF THE FEEDING OF DRAUGHT HORSES."—By Prof. H. A. WOODRUFF.

(This paper appeared in *The Veterinary Record* on February 11th.)

ADJOURNED DISCUSSION.

Mr. PORCH, in continuing the discussion, said that he wished to thank Prof. Woodruff for bringing this very interesting subject before them. He did not quite agree with Prof. Woodruff in his title, because he (the speaker) looked upon it that economic feeding should apply to any class of horse. If the theories applied to draught horses, he could not see why they should not apply to other classes as well. Of course he knew there was a good deal of prejudice. A good many said "only feed on oats and hay." He daresay if a trainer trained a Derby runner, and gave him maize, if it lost the race he would be blamed for the training. He (Mr. Porch) would have liked Prof. Woodruff to have entered more fully into the practical details of the feeding—as to what foods and quantities they should give, and what work they should expect to get therefrom. He had given them such a good account of the chemical analysis of foods that he (the speaker) would not enter into that part of the subject. As to the heat value of the foods, this was most important, because he believed that the whole theory had been exploded, and that it was not necessary to give an albuminoid or nitrogenous substance in the food to obtain heat and force. The newer theory was that it was not necessary to give albuminoids to obtain force and only necessary to give albuminoids in sufficient quantities to supply the animal system with the waste of nitrogen. He had a few figures that Prof. Woodruff did not give, taken from Warington. The heat producing properties of the different constituents of foods was there given: fat 229, albumen 107, starch 100, cane sugar at 97, and glucose 90. According to this fat produces more than twice as much force as albumen. That was of great interest. They knew that in feeding, buying nitrogenous foods was more expensive than buying foods containing not so much albumen. He would give an experiment. He took 11 horses and weighed them, and he substituted for 3lb. of maize, 2lb. of decorticated cotton cake. The experiment lasted about six weeks. The horses were weighed at the end, with the result that four horses had lost weight. Six horses had gained. The eleventh horse had gained considerably in weight, but that horse had been off lame for some time, therefore it was excluded from the experiment. He might say that at the commencement of the experiment some of the horses refused to eat the whole of the cotton cake. That perhaps might account for the loss of weight. He could not say that those that lost the weight did not eat the whole, as he did not make a note. The price of the articles on the market at that time came out slightly in favour of the cotton cake. He thought that showed that they could break away from the old rules and ruts they had been running in for so many years by saying horses must be only fed on oats and hay to do the work. Then they came to the digestibility of the foods. One might give what should be good food from which the best results should be expected, but if they did not take into consideration the digestibility of those foods, they fed at a loss. It was not only the food which was given, they must also consider what the horse was able to assimilate. It appears from experiments that the amount of food given does not affect the amount assimilated. A horse practically starved cannot digest more than a horse well fed. Experiments showed that the horse was capable of digesting of maize 94·5 per cent.; from bran 93·3 per cent.; from barley and beans 84·5 per cent.; from beans 75·1; and 75·1 of oats. From hay they were only able to extract 43·3 to 61 per cent. Of course that depended on the quality of the hay. Maize, according to this table, should be of very much more value in feeding than oats. Not only was it cheaper per pound but they got about 20 per cent. more value out of the feeding. These experiments were made by feeding with one kind of food alone, but it is known that one kind of food has considerable influence on the digestibility of another. In the case of oats given with hay, not only are the oats digested, but the horse also digests more of the hay. Why that should be so he did not know. Although oil was supposed to be of great feeding value, he understood that an excess of oil prevented digestibility of the other foods with which it was given. So also starch and sugar he believed, if given with hay, especially if the sugar be over ten per cent. of the other fodder, digestibility was diminished. He would like to know whether Prof. Woodruff thought that or not? Common salt does not increase the digestibility of foods. He would also like to know the Professor's opinion on the cooking of food. He understood that the cooking of food did not increase the digestibility of it. He believed it was generally accepted that the cooking of food assisted the digestive organs in the assimilation of that food. Authorities which he had read said not; they had taken beans, maize, and bran soaked in cold water, which did not affect the digesti-

bility, but if they added boiling water to those articles of diet they prevented the digestibility of them to a certain extent. It affected albuminoids more than any other substances. Did an excess of water affect the digestibility of food? They had to look upon horses as machines. They might in exceptional cases be kept to look at, but the majority of people looked upon a horse as something, out of which a maximum of work must be obtained at a minimum cost. Therefore it had to be considered what kind of food should be given. Prof. Woodruff stated that the fatty ratio was less important than the nitrogenous. The figures which he had given showed that it really should be of more consequence than the nitrogenous. If they supplied sufficient nitrogen for the animal wants it was a waste to give in excess, because if a large quantity of nitrogen be given to a horse a portion of it was carried away with the fæces. It was true a certain amount might be converted into fat by a very wasteful process. Therefore in his opinion the fatty ratio should be of quite as much importance as the nitrogenous. There were other things which he believed affected digestibility. He should like to ask Professor Woodruff whether he thought that work had any effect on digestibility, whether a horse in work assimilates more from a food than a horse at rest. Work does not, according to most authorities, affect digestion, unless there be exhaustion, when it is diminished. What we want to know is what quantities of ordinary foods are required for a horse's maintenance without waste. He (the speaker) concluded from Professor Fred Smith's work that his experiments were carried out on Army horses, probably riding horses which weighed about 900lb. Therefore they concluded that 12lb. of hay would not be sufficient to keep a 18 or 19 cwt. cart horse in health. It was also stated that 10lb. in addition to 12lb. of hay was sufficient to supply a horse's wants for work. His (Mr. Porch's) opinion was that it was not enough for the horse that had to get his own living as well as his master's. It might do for Army horses.

What work should the horse perform? He believed a good many authorities said 3000 foot tons? Very much depended on the pace they did the work at. It is very difficult to ascertain the amount of labour a horse performed as it varies considerably from time to time, such as the state of the roads, and the pace at which it is done. It has been shown that a horse of 1000lb. weight exerted 3000ft. tons when walking nine hours at three miles per hour, but the same amount of force was exerted when trotting 10 miles in the hour. If we take into consideration that the friction increases as the square root, and the force necessary to overcome the friction as the cube, it verifies the old adage, viz., that it is the pace that kills. Of course the cost of the different feeding was one of very great importance. That had to a very great extent to be regulated by the market. Prof. Woodruff had said that by substituting one food for another, taking into consideration the digestibility, the cost on the market of the different articles of diet, they could substitute one article of diet for another to very great advantage to the owner's pocket. The stud with which he was connected was fed very largely on maize. Personally he had a very high opinion of maize for working horses. He knew that if horses received the same quantity of oats as they had had of maize, they fell away in condition very rapidly indeed. When they gave maize to horses they wanted to select their hay very carefully. It appeared to him that when feeding with a large quantity of maize they had not sufficient fibre in the maize to retain the food sufficiently long in the alimentary canal for the horse to extract and assimilate all that he should. If they gave soft meadow hay they found some purging, but substitute for it good hard Timothy or Italian rye grass, and the horse stopped purging and put on condition. He hoped that there would be a good discussion, which he was sure the subject was worthy of.

Mr. BUTTERS said the more one tried to look into the subject in a scientific way the more complicated it appeared to be. He would have liked to have had Prof. Woodruff's opinion upon cooked foods, especially for draught horses. He (the speaker) knew that in some parts of the country cooked foods had been very much used, but they did not cook good food. It was generally the inferior qualities of hay and the inferior qualities of oats which were steamed or boiled or prepared in some way so as to render them more palatable to the animals when mixed with other foods. Perhaps in some measure it added to the expense; but they were able to get better results. The animal had the food put before it in a way by which it could readily eat and probably assimilate readily. He did not know whether Prof. Woodruff had given horses oil mixed with the diet. At one time he knew an individual who was very partial to giving his horses linseed oil. They seemed to get very fond of it. It was a small stud of horses, they were in poor condition, and the horse keeper took it on his own initiative to give them a small proportion of linseed oil; and the animals certainly seemed to improve on it, and to do very well, and were benefitted by the addition of the oil.

Prof. PRITCHARD said he had very little to say, but he wanted that little to be as potent as possible. With regard to economy of feeding he was rather surprised to hear that 20lb. of hay was necessary. He would have liked to hear a little more about the quantities of food given to horses under different circumstances—cart horses or those working in the ordinary way. He thought they would have to give from 28 to 30lb of food, and they must make that about half corn and half chaff or something in that direction. But he would like to lay this down: that as far as his experience took him, a little and often was far better than giving a large quantity of food once or twice or thrice a day, as was usual. If that 28 or 30lb was given in small quantities, he thought they would derive far more advantage than giving the same amount of food or double the quantity in large quantities. One thing had been absolutely missed in the paper. Professor Woodruff would excuse him if he said it. It was that a horse should be watered before he is fed. It appeared to him that that was entirely left out of the paper. If he was wrong someone would probably correct him. And there was a reason for it. If the animal's stomach was empty, which it should be before it was fed, the water went right through the stomach into the bowels, and as he had proved by experiment, in less than two minutes that bucket of water—if he had emptied a bucket—would be in his large bowel, and had travelled about sixty feet. The stomach was then left to deal with the food afterwards swallowed, and the food swallowed into the stomach after the water had passed was dealt with by the gastric juice, and was properly digested. Now they might talk about whatever they gave in the way of food: if the animal digested that food, they had taken out more nitrogenous principles and all other principles that make blood, and healthy blood, from that food, and the stomach was left afterwards to itself. But supposing they gave the quantity of food they were talking about, and allowed the animal to drink afterwards, indigestion took place, and all manner of mischief. They did not get healthy blood as a consequence. Now there he thought came in the economy. The element of this paper was the economics of feeding. As to the quantities of food, or the quality of the food, he was going to say that was a matter absolutely secondary, but he would say third-rately, if they fed their animals properly. He had tried in a few words to lay down how they should feed an animal properly. It was not so much

the quantity or the quality, as the manner in which they gave it.

Mr. RUTHERFORD said he had considerable diffidence in speaking before such a distinguished audience as was assembled that night, but he might say at once that he took so much interest, forcibly so, in the feeding of horses, that when he heard that Professor Woodruff was going to favour the Society with a paper, he was almost coming to London to hear it all the way from Edinburgh. And when he read it as published in *The Record* of the week before last he must confess, without detracting in the least from Prof. Woodruff's academic paper, that he felt considerable disappointment, inasmuch as while it dealt largely with the economy of feeding from a scientific point of view, it failed entirely to his mind to grasp the economics of diet in the feeding of horses, because it did not deal with diet as a causation of disease. No matter what the system of dieting was, if the system led to frequent illness, if clinically it was a bad one, then he said it was not an economic system of feeding. And it was because some of the things Professor Woodruff dealt with were what he (the speaker) had had to deal with for a long time, and about which he had consultations with railway contracting firms, that he came there that night. Now first of all, as to the subject of maize. He believed that in England maize was largely approved of in the feeding of horses. It was his experience that it was the most dangerous article of diet that can possibly be introduced into a stable. He believed more—that the profession as a whole did not yet know all the qualities, feeding and poisonous, of maize. There were many conditions that could not possibly be detected by the hand or smell, or feel, that were poisonous to the horse. How else could they account for the constantly recurring outbreaks of colic, frequently leading to ruptured stomach and to twist of the bowel in cases where maize was largely fed, unless it had some specific property peculiar to itself capable of producing bowel disease? So much had this been impressed upon his mind that in all the stables with which he was connected where horses did fast harness work he absolutely prohibited it being used. He had had arguments with the owners of those stables they had said, "Well, a thousand horses, Mr. Rutherford; if we can save a shilling a week, it is fifty pounds. It is the price of a horse a week; and that is economy." "Is it?" he said, "Supposing the following week you lose five or six; I fail entirely to see the economy." No matter how maize was fed, he held that draught horses especially (to which the paper referred), were only able to digest a certain amount of it. What was that? He was not going into decimal fractions; he put it into pounds. How much maize could the ordinary draught horse, single horses, working, and weighing probably from sixteen to eighteen hundredweight—how much weight of maize can that horse be safely allowed to digest in twenty-four hours? He said six to eight pounds, and if they they went beyond that they were into the region of danger and colics, and all their beautiful consequences immediately followed. Why should maize cause colic? Because it was indigestible. Over and over again where they made a post-mortem they found that the stomach itself seemed to have a power of selection. It digested the oats, hay, and everything else was passed into the bowels; but they would find the fine interior of the maize lying in the centre of the stomach, surrounded by other food just simply like a mass of putty, absolutely indigestible, and as big as a cocoanut very often. That was the maize that turned sour, and gave rise to gastric tympany, the most dangerous form of tympany and colic they could have. Now the way to avoid that was to avoid using the maize; and he said that a safe dietary scale of maize for the draught horse was six to eight pounds, and he challenged discussion on the point. He would be very pleased to hear anybody satisfactorily controvert that opinion, and be able at the same time to say that the stables where they used more than six to eight pounds a day were absolutely free from colic and from ruptured stomach and twist of the bowel. Over and over again, they had had outbreaks, where from ecoonomic points of management maize had been suddenly adopted in a large quantity in lieu of oats. The moment they began that, in a few days or a week colic increased so rapidly that he had seen sometimes five or six in the night in one stable. Stop the maize, or reduce it to a reasonable quantity, and at once your colic ceases. The inference was plain. It was due to the presence of more maize than the horse could digest. What amount was absolutely fatal? He thought that if the horse got twelve to fourteen pounds it was certain to poison him before long. He thought there was something in the administration of the food. It was very material as to how the maize was given. Then another thing—about boiling it. He had one stable in his mind's eye where boiled food was used. Maize was an article of diet in that stable. They had there more fatal and frequent cases of colic than in any of the stables of his clientèle. They said they had been accustomed to losing them all their life, and they were quite used to it. (Laughter.) But he did not prohibit boiled food because it was boiled maize. He said that if it was boiled it was about the only safe way to give it, if they did not give too much of it; because it was not liable to take up water afterwards; but because horses were fed persistently on boiled food the stomach gradually got dilated. He would ask them what was likely to be the effect on a horse coming in tired at night if it were given a pailful of food and it was bolted in fifteen minutes? Why, a ruptured stomach. If the animal were put on dry food, the whole trouble stopped. Inherently, boiled food was not an article that a horse would seek himself if he could get anything else that was better. As to oil, they used that every night. They gave a wineglassful with half a pound of syrup every night—not with a view to fattening a horse, but with a view to preventing tympanic colic, which it does. In conclusion, Mr. Rutherford [illegible] an experience he had had which showed the [illegible] quality of oil in acting as a simple aperient [illegible]. He thought a standard diet for a horse was oats and hay, and let the hay be good. He agreed with the gentleman who said that if they had bad hay and bad anything else, God help their stable. If they had good hay there was a chance of pulling through.

Mr. WRAGG added his word of thanks to Professor Woodruff. He was quite at one with his friend about maize not being a suitable food. In his own practice, the stables that fed upon maize were those where they had the most colic and fatal cases of bowel disease. He maintained that the amount of food given to horses should depend entirely upon the number of hours they were out of the stable, the number of miles they travelled the regularity of feeding and the average life. If they had statistics showing those factors they would be able to arrive at a better conclusion as to the proper food that a horse should be given. Professor Woodruff had given statistics about tram horses, horses that got twenty-seven pounds of food a day, and travelled about fifteen miles a day, but he had said nothing about the amount of food that should be given to horses weighing something like fifteen hundredweight and upwards that were working out of the stable over twelve hours, and completed a distance of 120 to 140 miles a week. His practice consisted principally of heavy horses, and amongst those he had some large growing horses. When he had been consulted he had advocated that they should be fed upon oats, hay, and clover chaff, and the amount of food to be given to each horse was forty pounds a day. Those large horses, and horses that worked very hard and travelled the distance mentioned,

could not possibly do the work on 27lb, or much under from 36 to 40lb a day. The proportion of the feed consisted of 20lb of corn or oats and 20lb of chaff—meadow hay and clover in equal parts. In the winter months they took off three pounds of oats and subtituted three pounds of either beans or peas. He advocated very strongly that horses in one stable as far as possible should be fed by one man; and he recommended that the food should be measured out into the manger. Of course, they took other food to use in the nosebags which must be mixed up. He knew for a fact that men who carted hay and straw and vegetables to London—little men that had their own horses—gave them as much as a sack of corn, or 160lb, of oats a week, and beans in addition; and they said if they did not feed their horses in that way they would not be able to get the work out of them.

Watering had been mentioned, and he thought that had a great deal to do with keeping a horse in health. He was quite certain it was to the advantage of the stud if the horses had water constantly by them. They would then not be induced to drink so much out of doors, and thereby would lessen the risk of catching that infectious complaint that they had so much trouble with in London.

In reply to Mr. Porch,

Mr. RUTHERFORD said that in stables where maize was used there was an excess of dangerous colic in exact proportion to the amount of maize used. He said the inference was plain: it was due to the article of diet.

Mr. ROWE said he would like the opinion of anyone present as to whether bread was detrimental or economic in the feeding of horses.

Mr. ROGERSON would like to submit a question to Mr. Rutherford with regard to feeding on maize and the cases of colic. Mr. Rutherford had said that by giving 6 to 8lb a day they would have decidedly a less number. Would he kindly give a percentage of cases.

Mr. RUTHERFORD replied that with 30 or 40 horses they had in six months 12 deaths from twisted and ruptured stomach while they were using 14lb of maize a day and only 4lb of oats. They cut the maize down to 8lb, increasing the oats. They not only had not a single case of ruptured stomaeh nor twisted bowel after that, but they had only had some three or four cases of colic. That was his experience extending over some years. In reply to Mr. Butters, Mr. Rutherford said the maize was given crushed.

Mr. BUTTERS mentioned that some time ago he was having several cases of colic; and on close examination of the provender it was found that great quantities of maize were whole. On communicating with the provender store where the food was cut, crushed, and mixed, it was found that one of the crushers was broken, and was allowing whole maize to pass. Again, as far as his experience went, maize required to be matured. In reply to Professor Pritchard, Mr. Butters said that it was difficult to give an opinion upon a sample as to whether maize was really thoroughly sound.

Prof. WOODRUFF, replying to the discussion upon his paper, divided the criticism into three heads. First of all as to the scope of his paper, this had been misunderstood. His point was to show that it was worth while taking note of scientific experiments with regard to composition, digestibility, the heat value of food, and that two foods equally good in themselves might be changed about depending on which was the cheaper, so that they might get economy of feeding with the same results as far as work was concerned. The second criticism was with regard to maize, and that he would deal with in going through the speakers' remarks seriatim. The third heading was questions, and he would try to answer some of these as well as he could. If he had one object more than another, it was to get the criticism and remarks of people who had very much wider experience than himself, or even than the majority of men, therefore he was very glad to hear Mr. Porch's speech. He had objected to the words "draught horses." He (the speaker) thought it would be treading on very dangerous ground to advocate the kind of foods mentioned in the paper for say thoroughbreds, therefore he spoke about horses commonly fed on foods which appeared in the paper, and he claimed that those were commonly draught horses. Then with regard to the question of fat, he was pleased to hear Mr. Porch's experiment of the feeding on decorticated cotton cake. Theoretically it ought to be good, and to hear that it worked well in practice was something he did not know but was very glad to have confirmed. With regard to the digestibility table that Mr. Porch mentioned given in Warington, that table simply gave the percentage digested from any one food stuff without specifying how much of the digested material was fat, how much carbo-hydrate, how much proteid. Therefore it was quite impossible to say the heat value of that food, and so the table was not of any great value. With regard to the combination of hay and oats improving the digestion of both, he said first of all that hay given in the form of chaff would increase the mastication of both foods, and therefore tend to help digestion. Secondly, hay given with oats would cause the oats to be retained in the stomach of the horse a good deal longer than if they fed oats alone. There were some experiments illustrated in Smith's physiology where hay was given just before or along with oats, and the time the food was retained in the stomach was considerably increased when hay and oats were combined. Then there was another thing, viz., that hay alone had not got the proper balance of nutritive constituents, which was so essential for securing the maximum digestion. With regard to cooking foods, cooking food for man was useful because it disintegrated and broke up starches, and therefore allowed saliva to act on the starch and convert it into soluble sugar. It was quite obvious that a good deal of our food was largely of value because it contained starch. In a horse, however, if there was any ptyalin in saliva it was comparatively little. The digestion of starch in the stomach of a horse was an unimportant question, so that cooking was not necessary to improve the digestibility of starches. For other reasons also he would not advise cooking to increase the digestibility of food. Then with regard to the importance of the fatty ratio, it did not matter whether they gave much fat and little starch or *vice versa*, as long as they gave the right amount of the two combined it was quite satisfactory. They must, however, have the right balance of proteids in order to get digestibility of the other constituents of the diet, so that he claimed that the fatty ratio was of less importance than the nitrogenous ratio. As to linseed oil, his own experience with it was confined to horses that were very much emaciated. He thought it would build up the system and improve the condition of the animal as soon as anything. With regard to Professor Pritchard's views, he did not think anybody would disagree as to the question of "little and often," but the point was, Was it practicable? He maintained that in many cases in London it was absolutely impracticable. He was very glad to hear Mr. Wragg say that the proper way to water a horse was to let him have water always by him. If the horse was allowed to be the judge he could not make many mistakes. As to Mr. Rutherford's speech, it certainly was not the object of the paper to deal with food in its relation to disease. But he should like to say that in making changes of diet, the most important thing was that the change be made slowly. The causation of colic might be accounted for in a good many instances by bringing in horses which had never had maize in their lives before and putting them on to maize the very first

day they got hold of them. He thought if they made the change slowly, and fed regularly, they could use a reasonable amount of maize. Then, too, Mr. Rutherford had admitted that 6 to 8lb. of maize might be fed with safety.

Professor WOODRUFF said that the general opinion was that maize was the most digestible of all foods by the horse. Then with regard to this pasty mass like putty, he thought the explanation might be found in the remarks that Mr. Porch made. If they gave soft hay, or too little hay with maize they might get indigestion. If they fed a rabbit on maize meal, the rabbit would die if they gave it nothing else, because it would form a mass almost like cement inside the animal. Oats, hay, and clover chaff no doubt were as good diet almost as one could feed; but he was glad Mr. Wragg said "Brewery Companies." They knew the dividends brewery companies were in the habit of paying, and the question of economy was not first with brewery companies. Then with regard to 40lb. of food a day, he thought that was rather a lot. He had compared the rations given by the Railway Companies all round, and it was rather more than the average. As to Mr. Rowe's question about bread, he (the speaker) thought bread would be rather dear diet to put a horse on to. He thanked them for the amount of interest they had displayed.

On the motion of Mr. Wragg, seconded by the Hon. Sec., a hearty vote of thanks was passed to Professor Woodruff for his paper.

A vote of thanks proposed by Mr. Butters, seconded by Mr. Porch, was accorded to the gentlemen who had brought morbid specimens, followed by the usual vote of thanks to the President.

HUGH A. MACCORMACK, *Hon. Sec.*

THE CAUSES OF THE INCREASE OF ANTHRAX IN GREAT BRITAIN.

(Abstract of Paper by SHERIDAN DELEPINE, M.B.Edin., M.Sc. Vict., Professor of Comparative Pathology, and Bacteriological Director of the Public Health Laboratory Manchester University).

Almost every year between 1892 and 1902 some cases of anthrax, human or animal, have come under my notice, and I have been able to satisfy myself by complete bacteriological examinations that both in Cheshire and Lancashire there must exist some fairly permanent sources of infection. The persons affected were almost invariably farmers or butchers, and the disease appeared in the form known as "malignant pustule." Up to two years ago there was nothing more than the above facts to give rise to special apprehensions. As far as Cheshire was concerned, the Board of Agriculture Reports of Annual Proceedings seemed to show that the county was among those which suffered least from anthrax. Yet this constant recurrence of the disease was not without significance, but in districts where foreign products are imported on such a large scale, it seemed a matter for congratulation that the cases should be so few. In fact, it seemed that factory legislation had effectually kept under control the dangers to man and beast so clearly pointed out before 1882 by Mr. John Spear in the twelfth annual report of the Local Government Board (1882-83).

During the year 1903 an unusual number of organs from animals affected with anthrax were referred to me. In the month of September alone, Mr. Holburn, the Chief Veterinary Inspector of Manchester, detected several carcases of cattle affected with anthrax. To exclude any possible doubt, I confirmed his diagnosis by microscopical and cultural tests, as well as by the inoculation of guinea-pigs. As three of these animals (2 cows and 1 bull) had come from a limited district, my previous suspicion that anthrax was increasing rapidly in that district was confirmed. This increase seemed to be explainable only on the supposition that careless disposal of carcases had let to the infection of pastures. Such a marked increase is a purely agricultural district could hardly be due to industrial processes.

In discussing this matter with those interested in the prevention of anthrax, I was struck by the importance attached by many to the share taken by artificial manure and manufactured foods prepared from imported products in the causation of anthrax. This impression was probably produced by the publication of a certain number of cases during the past ten years. Semmer in 1895 discovered anthrax spore in hay imported from Southern Russia into Austria. Outbreaks of anthrax occurring in Germany have been traced to Russian grain. M'Fadyean, in London, found that an outbreak of anthrax among horses was due to the use of infected oats coming from Russia, he also attributed a small outbreak of anthrax in cattle to the use of linseed cake prepared with Indian produce. I have already alluded to Mr. John Spear's report upon industrial anthrax. The late Mr. W. Duguid, in the "Annual Report for 1891, of the Director of the Veterinary Department of the Board of Agriculture" (1892, p. 54) attracted special attention to the exceptional prevalence of anthrax in the West Riding of Yorkshire. Dr. John Henry Bell, apparently on the basis of this report, stated at a later date that "the outbreaks of anthrax are most frequent in those counties of Great Britain where dry foreign wool, hair, hides, and skins are manufactured into goods." The same view is supported by Professor J. Wortley Axe, in his recent communication to the National Veterinary Association (Sept. 1903). Actual cases of infection occurring in this way have been recorded on the Continent during the last twelve years.

With regard to manure as a source of infection, it is obvious that blood, or other parts of carcases affected with anthrax, may be sent from the knacker's yard without being disinfected, and in this way the disease may be widely scattered. Actual cases of infection due to this cause have been reported by Nocard and L. Faucher. Mr. J. A. Gilruth, M.R.C.V.S., Chief Veterinarian in the New Zealand Department of Agriculture attributes the introduction of anthrax into New Zealand to bone manure, which had been imported from Australia and India ("New Zealand Department of Agriculture, Division of Veterinary Science Report, 1902-3," p. 286, also previous Report).

There can be little doubt that anthrax may be introduced from time to time into various districts by products imported from outside, but this does not prove that the majority of cases are infected in that way. This mode of infection cannot account for the distribution of anthrax, nor for its persistence on certain farms or districts. It has been noticed that anthrax persists and recurs at intervals on many farms in this country. It is also evident from the statistics published by the Board of Agriculture that the disease is very unequally distributed in Great Britain, some counties being almost free from the disease, while others are severely affected. These facts point to persistent local sources of infection rather than to occasional importation by articles in common use. In order to obtain comparable figures and information upon which practical deductions may be based, it is not sufficient to collect returns of the number of outbreaks which have occurred in each county or each agricultural division of Great Britain. Several outbreaks may occur in succession on the same farm in subsequent years, and this is not indicated in the published statistics. The number of cattle, sheep, and swine per acre is much greater in some counties than in others—the pro-

portion of land used as permanent pastures or rough grazings, also varies in different counties.

From a study of the distribution of anthrax in the various agricultural divisions one is led to the conclusion that the rate of incidence of the disease is not materially influenced by the geographical situation, climatic conditions, density of cattle, or amount of manured land. This is made very clear by a comparison of maps in which the amount of manured land, the density of cattle, and the rate of incidence in agricultural districts and counties are indicated by various shades. A study of the returns published by the Board of Agriculture will also show that while there has been a steady increase of anthrax, there has been on the other hand a gradual diminution in the total amount of manured land.

With regard to the influence of industrial processes, one may also obtain some general impressions from a comparison of the rate of incidence of anthrax, and the character of the chief industries in the various counties. The counties where processes involving the use of hides, skins, hair, wool, bone, etc., should, if cattle are frequently infected through these products, directly or indirectly, show a greater incidence of anthrax than those where such products are not frequently introduced.

It will be found that Haddington, Edinburgh, Elgin, Aberdeen, Nairn, are the most severely affected counties, although most of them are practically free from those industries which may be reasonably considered as possible sources of infection. On the other hand Peebles, Durham, the North and West Ridings of Yorkshire, Cheshire, Wiltshire, Cumberland, Worcestershire, Nottingham, Lincoln, Leicester, are only slightly or moderately affected, although more or less impurtant wool, leather, artificial manure works, are to be found within their confines.

There is nothing in the published statistics, which I have analysed, supporting the view that the occurrence of anthrax is chiefly determined by the occasional introduction of infected food or manure into the districts affected; on the contrary, the grouping of large numbers of cases in limited districts indicates that certain regions become specially infected, and that the disease spreads from centres of infection intimately connected with these localities.

This is in accordance with the large mass of facts which have been observed on the Continent for more than a century, and which for the past forty years have been shown by the work of Davaine, Koch, Pasteur, and others, to indicate infection of the soil of certain localities by the *Bacillus anthracis*.

Unfortunately, the statistics upon which I base this statement are open to certain objections. They are admittedly incomplete, and there is no absolute guarantee that all cases returned as cases of anthrax are genuine cases of the disease. These objections can be made to any kind of statistics relating to any disease, but in the case of anthrax they have special weight, for the methods of notification and investigation are, in general, far from insuring complete and accurate notification. This is admitted by the Board of Agriculture, and is also proved by various facts.

I have had the opportunity of examining organs obtained by Mr. Holburn, from animals affected with anthrax, and sent to the Manchester abattoir. In several of these cases the *discovery of the disease at the abattoir* was the first intimation that it had occurred on certain farms. Other instances have also come under my own observation in which the *occurrence of anthrax in man* has led to the detection of overlooked cases in cattle.

The occurrence of outbreaks of *anthrax in swine* without corresponding outbreaks in cattle is also a significant fact. Swine are usually infected through the flesh or offal of cattle or sheep that have died of anthrax, or been slaughtered on account of their being diseased.

From the study of official returns I think one may safely conclude that the statistics do not support the views which have been expressed regarding the preponderating influence of imported artificial or prepared foods, manure, or trade refuse upon the increased prevalence of anthrax. On the other hand, the same statistics favour the view that there are infected areas in various parts of the kingdom. In order to obtain more definite information upon this point, it is necessary to study in detail the distribution of the disease in a single county.

Through the courtesy of Colonel Hammersley (Chief Constable for the County of Chester), I have been able to obtain particulars relating to 296 deaths of animals which were reported to have died from anthrax in the County of Chester during the last twelve years. I do not feel at liberty to give a detailed analysis of these cases here. Those anxious to study the matter will probably have the opportunity of doing so shortly in the report of the Committee dealing with the question. I may say, however, that the investigation of these cases led to exactly the same conclusions as the study of the distribution and rate of incidence of anthrax in other parts of Great Britain. The disease has greatly increased in the county during the last three years, and more specially during the last year. The rate of increase in cattle alone has been remarkable. On the supposition that the number of cattle has remained constant during the last twelve years, and that the average has been 176,000, the rate of incidence per 100,000 cattle in each triennial period has been approximately:—

1893-1895	inclusive	2·07.
1896-1898	,,	3·6.
1899-1901	,,	6·6.
1902-1904	,,	over 15.

It is impossible to explain such a progression by the occasional importation of infected manure, food, or raw manufacturing material. On the contrary, it is easy to explain it on the supposition that previous cases have acted as sources of infection for subsequent cases. This is entirely supported by the distribution of the cases, which shows that the disease has recurred with increasing frequency in limited areas, not always on the same farms, but on farms not far distant from each other. With few exceptions the infected areas are not situated in the neigbourhood of works where suspicious materials are treated. In some 30 cases specially investigated, the only food common to all animals was derived from the farm; 11 of the cases were fed entirely on farm produce. Artificial and imported foods came from various sources, not more than 6 or 7 of the cases at the most were given the same kind of imported or artificial food.

All these cases occurred during the winter months, so that they gave an opportunity to estimate the value to be attached to the fact that anthrax is often more prevalent during the winter months than during the warm season. It is often argued that as animals are so often infected at the time when they are supposed to be more or less entirely stall fed, it is probable that artificial food is more likely to be the source of infection than farm produce. The series of cases just mentioned does not support this argument, for as I have stated, more than one-third of the animals were entirely fed on farm produce, and the animals which were not so fed were nevertheless partly fed on farm produce.

This evidence against the influence of manufactured food is supported by several investigations, which I have carried out in my laboratory. In connection with five outbreaks of anthrax which have occurred during the last three years in Lancashire and Cheshire, I have analysed bacteriologically eight samples of cake of home and foreign manufacture, and have found them all free from anthrax spores and bacilli.

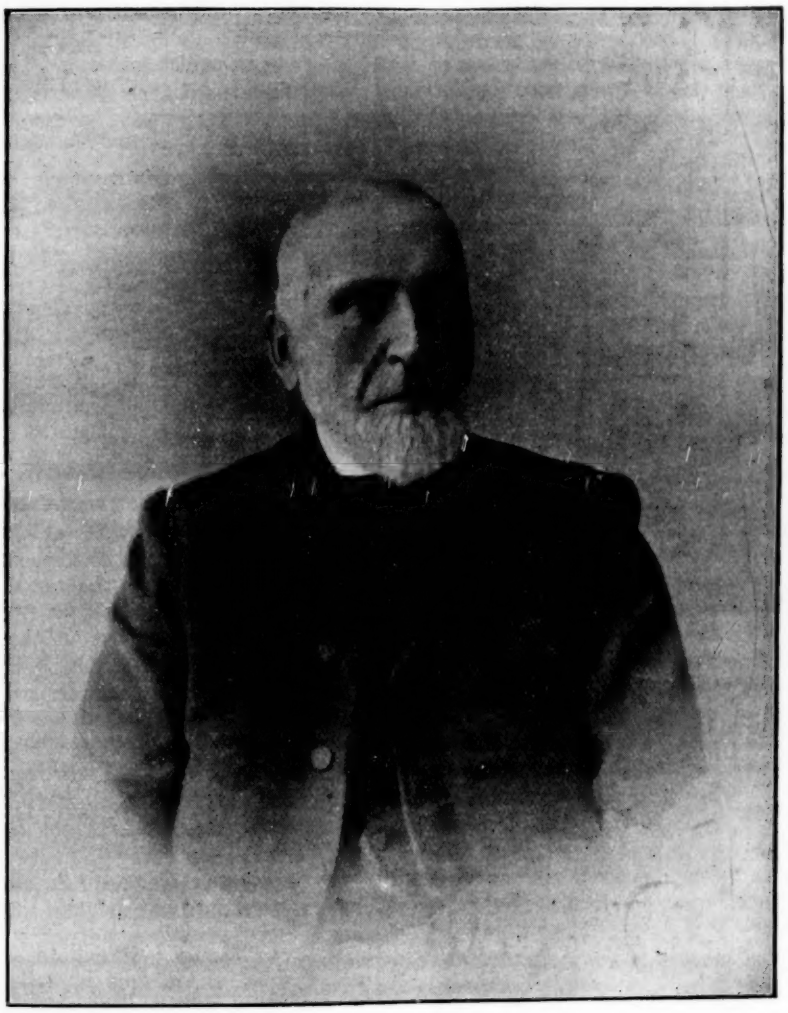
I have also analysed four samples of oatmeal, suspected of carrying infection, and have found them free

OBITUARY.

JOSEPH SHEPHERD CARTER, F.R.C.V.S., Bradford.
Graduated, Lond: May, 1847.

We regret to announce the death of Mr. J. S. Carter, F.R.C.V.S., which took place at his residence, Ash Grove, Bradford, on Saturday, March 11. Mr. Carter, who was in his 81st year, was one of the oldest veterinary Surgeons in Yorkshire, and only retired from practice in June of last year, on account of failing health, after having been in active practice in Bradford for about 54 years.

Mr. Carter held several pnblic appointments, and prior to the West Riding County Council being formed he was Chief Veterinary Inspector for the East and West Ridings, and was subsequently appointed Veterinary Inspector under the Contagious Diseases (Animals) act. He was an ex-Member of Council of the Royal College of Veterinary Surgeons. He, along with his old Colleague, the late Prof. Williams, founded the Yorkshire Veterinary Medical Association, of which he was a past President, and in the proceedings of which he always took an active interest. He was a Member of Council of the "National Vety. Benevolent and Mutual Defence Society." He was also a member of National Veterinary Association, and regularly attended its meetings and the functions in connection with the Association.



Mr. Carter was educated at Hipperholme Grammar School. In his youth he was a member of the local Yeomanry, and was called out during the Chartist riots in 1848.

He is survived by three sons and two daughters; all his sons are members of the veterinary profession, Mr. G. H. Carter, F.R.C.V.S., Keighley, Yorkshire; Mr. J. H. Carter, F.R.C.V.S., Burnley, Lancashire; and Mr. Frederick Percy Carter, F.R.C.V.S., Bradford, Yorkshire, who succeeds to the practice.—*Yorkshire Observer.*

The funeral of the late Mr. J. S. Carter, F.R.C.V.S., took place on Tuesday, 14th inst., the remains being interred at Coley Churchyard, Lightcliffe; the chief. mourners were Mr. and Mrs. G. W. Carter, Mr. J. H Carter, and Miss Carter, Mr. and Mrs F. P. Carter, Mr. and Mrs. A. H. Brown, Mrs. Wood, and Miss Gibbons. Amongst others in attendance were representatives of the Yorkshire Veterinary Association, including Mr. F. Hallilay, M.R.C.V.S., Pres., Mr. J. Clarkson, M.R.C.V.S., Secrty, Mr. A. W. Mason, F.R.C.V.S. Leeds (ex-President of the Royal College of Veterinary Surgeons); Mr. H. G. Bowes, M.R.C.V.S., Leeds; Mr. George Whitehead, M.R.C.V.S., Batley; Mr. G. Schofield, M.R.C.V.S., Pontefract; Mr. C. Drabble, MRCVS, Bradford. The general public were largely represented.

A large floral cross from the children was laid upon the coffin and number of wreaths were sent, including one from Mr. and Mrs. Drabble, and one from the President and members of the Yorkshire V.A.—*Bradford Daily Telegraph.*

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from anthrax bacilli and spores. To be conclusive, these observations require to be extended.

All the facts so far discussed tend to support the views which were generally accepted over twenty years ago regarding the primary importance of infection of the soil. They do not exclude the possibility of the occasional introduction of the disease by imported foods or manures, but they indicate that these latter sources of infection are of secondary importance.

It should be remembered that infection of the soil does not simply mean that of fresh grass of pastures, but also that of hay, grain, and roots grown on infected fields.

(To be concluded.)

Personal.

His Majesty the King held a Levée on Friday, March 10th, at St. James' Palace at 12 o'clock. Presentations to the King were made, the names having been previoutly left at the Lord Chamberlain's office and submitted for His Majesty's approval:—

Mr. Stewart Stockman, on appointment as Chief Veterinary Officer, Board of Agriculture, by the Earl of Onslow, G.C.M.G.

Lieut. TYLNEY HAIGH, A.V.D., riding his own horse "Tim" finished fourth at Colchester in the Heavy Weight Cup of the VI Division. There were eleven entries and the competition was very keen.

Twisted Neck.

A mare, 20 years old, had a severe attack of colic, and was found cast next day showing general convulsive movements. She was got up and Leblanc noticed that the hind legs were spread, the neck was twisted to the off side and the head hung down. The neck was easily put straight and kept in place by a stout rubber band, but she threatened to fall, and twitched all over, she could not manage her legs and went down and remained unconscious. Temp. normal, breathing rapid, pulse hard and quick, clonic convulsions continued in spite of chloral and morphia, so they were given in fatal doses. P.M. did not reveal any damage to the central nervous system, cervical vertebræ, or their articulations, but the deep muscles of the neck were lacerated and there was an amount of interstitial hæmorrhage.—*Journ. de Méd Vét.*

Wind-Sucking.

Malkmus has endeavoured to show that the views of older writers—that wind-sucking is due to sucking wind or to expulsion of air from the stomach—are wrong; and to check Dieckerhoff's theory that wind-sucking is an expiration of air from the mouth and that the gurgle is a laryngeal murmur. Malkmus invented an ingenious pneumograph, with which he can measure with great exactness the respiratory curve of wind-suckers, and he has found that wind-sucking does not make any great change in the normal curve except an interruption of very short duration, immediately followed by the normal rythm of respiration. This is opposed to Dieckerhoff's theory that wind-sucking cannot be produced by an inspiration.

The investigator has not by means of the curve settled all the points about wind-sucking, but he shows that it commences with a fixing of the upper jaw and a lowering of the larynx. According to Malkmus—and this is an important point—the fixing of the upper jaw and the lowering of the larynx widen the opening of the pharynx and thus allow air to enter, and the air entering the mouth and nose makes the characteristic grunt of wind-sucking, *e.g.*, that the noise is not laryngeal but is due to the entry of waves of air into the cavity of the pharynx.—*Deutsche Thier. Woch.*

Eighth International Congress of Veterinary Medicine.

The interest manifested in every country in the Congress to be held at Buda Pest increases from day to day. In addition to the local Committees already formed another has just been constituted at Dresden under the Presidence of Prof. Dr. Ellenberger, and includes among others M. Noack and M. Reimann, President of the Union of Veterinary Societies of Saxony. This committee has issued a warm appeal to all our *confrères* in the Kingdom. The local committee at Belgrade includes M. Popovits, President, and MM. Sava Voukosavlyovits Vety. reporter to the Minister for War, Pierre Theodorovits, Vet. of the Prefecture of Belgrade, and Dr. Georges Mitrovits, Military Vet. The Servian Committee has received 31 acceptances up to now. At Sofia the President of the local committee is M. Tuleff, Ministerial reporter. Dr. Salmon, of Washington and Dr. Liautard in Paris have written the Gen. Sec. to the Congress that they will call the attention of all interested through the Societies and the American Reviews.

Very recently Dr. Hagemann, Professor at the Agricultural Academy at Bonn, Piot Bey, reporter to the Egyptian Govt., MM. Lienaux, Professor at the Higher School of Vet. Medecine at Brussels, and Tokishige, Prof. at the University of Tokio have undertaken to edit reports on several subjects.

The Secretariat will do its best to send as soon as possible to the Members of Congress the original text of the reports with a *resumé* in several languages. Twenty-two have already come to hand and will be issued shortly. It is greatly to be desired that the other papers promised may be sent in by the end of March at the latest, so that they may reach the members in time to be of use at the Congress.

E. DE RÁTZ, *Gen. Sec.*

The Royal Veterinary College of Ireland.

The Lord Lieutenant of Ireland paid a visit to the Royal Vety. College of Ireland on Thursday, 16th inst., and addressed the students. In the course of his remarks the Earl of Dudley said that he formally opened the College two and a half years ago and he was very glad to learn that the number of students was now the second greatest of any vety. college in the United Kingdom. Considering it had only been in existence a very short time, that spoke volumes for the need there was for it.

DISEASES OF ANIMALS ACTS 1894 TO 1903. SUMMARY OF RETURNS.

Period.		Anthrax.		Foot-and-Mouth Disease.		Glanders (including Farcy)		Rabies. Cases Confirmed.		Sheep Scab.	Swine Fever.	
		Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Dogs.	Other	Out-breaks	Out-breaks.	Slaughtered *
Gt. BRITAIN. Week ended Mar. 18		27	32	..	..	23	46	..	..	36	13	57
Corresponding week in	1904 ..	17	26	..	..	34	73	..	..	30	23	134
	1903 ..	12	23	..	..	27	44	..	..	32	15	50
	1902 ..	10	32	..	..	21	34	1	..	53	30	97
Total for 11 weeks, 1905		227	348	..	..	243	454	..	..	504	125	475
Corresponding period in	1904 ..	228	315	..	..	305	614	..	..	877	280	1698
	1903 ..	170	273	..	..	251	466	..	..	953	281	1261
	1902 ..	175	318	..	..	232	453	6	..	862	348	1909
IRELAND. Week ended Mar. 11		..	..	..	..	..	..	..	..	14	..	9
Corresponding Week in	1904 ..	..	..	..	..	..	..	..	..	14	3	85
	1903 ..	..	..	..	..	..	..	..	..	22	1	82
	1902 ..	..	..	..	..	..	1	..	..	40	5	23
Total for 10 weeks, 1905		..	..	..	..	6	12	..	..	166	5	196
Corresponding period in	1904 ..	1	1	..	..	2	9	..	..	260	23	555
	1903 ..	..	..	..	..	1	2	..	..	287	8	333
	1902 ..	..	..	..	..	3	7	..	..	316	30	453

Epizootic Lymphangitis, Week ending Jan. 14, 2 cases; Feb. 25, 2 cases.

Department of Agriculture and Technical Instruction for Ireland, (Castle Street), Dublin, Mar. 16, 1905.

Note.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection.

Liverpool School of Tropical Medicine.

In view of the importance of the more exact study of the insects which transmit disease in men and animals, the committee of the Incorporated Liverpool School of Tropical Medicine have appointed as lecturer in economic entomology and parasitology Mr. R. T. Newstead.

Mr. Newstead is an Associate of the Linnean Society, Fellow of the Entomological Society, and an honorary member of the Royal Horticultural Society. He acted as assistant to the late Miss Ormerod, and has had a very long practical experience of the insects injurious to animals, man, and plants, and has been employed by the Board of Agriculture and some of the Colonial Governments to conduct investigations for them. He is the author of two important publications, issued by the Ray Society, upon "Scale Insects and Mealy Bugs." For several years he has acted as External Examiner in Entomology in the Edinburgh University and Reading College.—*The Times.*

CORRESPONDENCE.

"VETERINARY" ASSISTANTS.

Sir,

Adverting to the letter of your correspondent M.R.C.V.S. in your last issue "Veterinary Assistants," retired Farrier-Majors as such, it would be surprising if, after the training these men get in the Army, their services were not in demand. If civil practitioners knew more about them there would be a still greater demand, especially by busy men with large veterinary infirmaries and shoeing forges. They get the right training in the Army to make them useful when they leave it.

Their services are placed entirely at the disposal of the veterinary officers under whom they have entire charge of all the details of veterinary hospital work, compounding and giving all medicines and carrying out all the details of the treatment ordered the patients, and have the control of the staff of attendants, they see all cases from the beginning to end, and have much more opportunity for noting the effect of the agents used in the treatment than the veterinary officers who only visit at stated times. It is their business to see all animals when admitted to hospital, and have to carry out the treatment of ordinary cases till the veterinary officer's next visit. They also superintend all the shoeing and have charge of the farriers' shop.

Such a position begets a feeling of responsibility, and makes the retired Farrier-Major the right man for the superintendence of a large stud, or to take charge of a veterinary surgeon's yard and forge, especially where there are a number of in-patients to which he can attend, admit fresh cases and commence treatment in those which are urgent in the absence of the principal, attend to all foot cases and give instructions to the smiths in the shoeing of unusual feet, and if necessary carry out the work himself, dispense all medicines, keep the books, get out the accounts regularly, and generally carry on the routine work of the establishment, leaving free the principal to attend to his professional engagements.

As one who served in the Army and since retirement has assisted in private practice, about to become disengaged by retirement of employer, I venture to point out that there are positions which may be well filled by, yours faithfully,

FARRIER-MAJOR "RETIRED."

20th March, 1905.

SAD CASE.

Dear Sir,

May I ask you to print a further list of kind subscriptions towards the appeal I am making for Mr. A. G. Leaney, M.R.C.V.S. He listens with such evident pleasure to the kind enquiries that accompany the cheques, and begs me to say that he is so grateful to his professional brethren for their expressions of sympathy. He still lies in the same helpless condition.—Yours truly,

KEOGH KEMPSTON (Rector.)

The Rectory, Roscommon, March 22.

	£	s.	d.
Robert Clunas	1	1	0
G. Wartnaby	1	1	0

"TO PERFORM MINOR OPERATIONS."

Sir,

The enclosed from *The Field* of the 11th inst. may be of interest. Spectacle makers who can perform minor operations at Ophthalmic Hospital, cobblers at Orthopœdic Hospital and ward maid at General Hospital will be the next thing advertised for.

Docking, March 21st. M. B.

WANTED, early in April, a HORSEKEEPER, to superintend the management of a stud of 400 heavy horses in London and neighbourhood; he must have sufficient veterinary experience to perform minor operations, and thoroughly understand shoeing; good salary for suitable man.—Apply by letter to Box No. 16,473, Colman's Advertising Offices, 3, Arundel Street, Strand, W.C.

COMMUNICATIONS AND PAPERS RECEIVED.—Messrs. W. M. Scott, H. A. MacCormack, J. A. Todd, H. White Wallis, C. Toyne, Keogh Kempston, Tyluey Haigh. F. E. P.

Postal Anomalies and their Effects.

Veterinary Societies - Addresses.

Alterations for this list must be duly notified by the Secretaries

BORDER COUNTIES V.M.S.
Pres: Mr. J. W. Hewson, M.R.C.V.S., Wigton
Hon. Sec. (pro tem.): Mr. F. W. Garnett, M.R.C.V.S., Dalegarth, Windermere
Meetings, Second Friday of Feb., June, and October

CENTRAL V.M.S.
Pres. Mr E. Lionel Stroud, F.R.C.V.S., 29 Spring st., Hyde Park, W.
Hon. Sec: Mr. H. A. MacCormack, M.R.C.V.S., 122 St. George's Avenue, Tufnell Park, N.
Meetings, First Thursday in each month, except August and September, 10 Red Lion Square. Holborn, at 7 p.m.

CENTRAL V.A. OF IRELAND.
Pres. Mr. M. J. Cleary, M.R.C.V.S., Kilpatrick, Mullingar
Hon. Sec: Mr J. J. Vahey, M.R.C.V.S, Ballinrobe
Treas: Mr. J. F. Healey, M.R.C.V.S., Midleton

EASTERN COUNTIES V.M.A.
Pres: Mr. Fred. Morton Wallis, M.R.C.V.S., Halstead, Essex
Hon. Sec.: Mr. H. P. Standley, M.R.C.V.S. Wymondham
Meetings, Second Tuesday, Feb. and July

GLASGOW V.M.S.
Pres. Principal McCall.
Hon. Sec. Mr. Walter Gardner

VET. MED. ASSN. OF IRELAND.
Hon. Sec. Mr. J. McKenny, M.R.C.V.S. 116 Stephens-green-west, Dublin
Pres: Mr. Chas. Allen, F.R.C.V.S., 35 North Frederick st., Dublin

LANCASHIRE V.M.A.
Pres: Mr. W. Packman, M.R.C.V.S., The Wylde, Bury
Hon. Sec.: Mr. G. H. Locke, M.R.C.V.S. Grosvenor-street, Manchester
Meetings, 1st Thursday in April, June, Sept., & Dec.

LINCOLNSHIRE V.M.S.
Pres. Mr. T. B. Bindloss, M.R.C.V.S., Long Sutton
Hon. Sec: & *Treas*: Mr. T. W. Turner, M.R.C.V.S., Sleaford
Meetings, Second Thursday Feb., June, and October

MIDLAND COUNTIES V.M.A.
Pres: Mr. W. Hunting, F.R.C.V.S., Chelsea, London, S.W.
Hon Sec: Mr. H. J. Dawes, F.R.C.V.S., Camden House, High-st., West Bromwich
Meetings, Second Tuesday, Wednesday, Thursday, and Friday alternately in Feb., May, Aug. and Nov.

NATIONAL VET. ASSOCIATION.
Pres: Mr. R. C. Trigger, J.P., F.R.C.V.S., Newcastle, Staffs.
Sec: Mr. William Hunting, F.R.C.V.S.
Treas: Mr. F. W. Wragg, F.R.C.V.S., Whitechapel, London.

NATIONAL VETERINARY BENEVOLENT & MUTUAL DEFENCE SOCIETY.
Pres: Mr. W. A. Taylor, F.R.C.V.S., Brick-st, Manchester
Treas: Mr. E. Faulkner, F.R.C.V.S., Manchester
Hon. Sec: Mr. Sam Locke, M.R.C.V.S. Grosvenor Street, Oxford-st., Manchester

NORTH OF ENGLAND V.M.A.
Pres: Mr. W. Hunter, M.R.C.V.S., Newcastle-on-Tyne
Hon. Sec: Mr. E. R. Gibson, M.R.C.V.S. 25 Marlborough-street, Seaham Harbour
Meetings, Third Friday, Feb., May, Aug. and Nov.

NORTH OF SCOTLAND V.M.S.
Pres: Mr. J. McLauchlan Young, F.R.C.V.S., Univ. Aberdeen
Sec. & Treas: Mr. Clement Baxter, M.R.C.V.S., Elgin

NORTH WALES V.M.A.
Pres: Mr. R. Jones, M.R.C.V.S., Towyn, Merioneth
Hon. Sec. T. C. Howatson, M.R.C.V.S., St. Asaph
Meetings, First Tuesday, March and September

ONTARIO V.A.
Pres: Mr. J. H. Tennent, V.S., London, Ontario
Sec: & *Treas*: Mr. C. H. Sweetapple, V.S., Toronto, Ontario

ROYAL COUNTIES V.M.A.
Pres: Mr. H. C. Jagger, M.R.C.V.S., Bicester
Hon. Sec: Mr. Percy J. Simpson, M.R.C.V.S., Kendrick House, Maidenhead
Hon. Treas: Mr. J. P. S. Walker, F.R.C.V.S., Oxford
Meetings, Last Friday, Jan., June and Nov.

ROYAL SCOTTISH V.S.
Pres: Mr. Reid, M.R.C.V.S, Auchtermuchty.
Hon. Sec: Mr. W. D. Fairbairn, M.R.C.V.S., Cupar, Fifeshire

ROYAL VETERINARY COLLEGE M.A.
Pres: Mr. E. E. Brown, M.R.C.V.S.,
Hon. Sec: Mr. W. T. Collins, M.R.C.V.S.
Assist. H.S. Mr. F. W. Chamberlain.

SCOTTISH METROPOLITAN V.M.S.
Pres: Mr. John Hutton, M.R.C.V.S., Kelso
Hon. Sec: Mr. John McIntosh, M.R.C.V.S., Eskbank

SOUTH DURHAM AND NORTH YORKSHIRE V.M.A.
Pres.: Mr. H. Peele, M.R.C.V.S., 30 Church-street, Durham
Hon. Sec: Mr. W. Awde, F.R.C.V.S., Stockton-on-Tees.
Meetings, First Friday, Mar., June, Sept. and Dec.

SOUTHERN COUNTIES V.M.S.
Pres: Mr. F. Spencer, M.R.C.V.S., Basingstoke
Hon. Sec: Mr. J. Alex. Todd, M.R.C.V.S., Worthing
Hon. Treas: Mr. E. W. Baker, M.R.C.V.S., Wimborne
Meetings, Last Thursday, Mar., June and Sept.

TRANSVAAL V.M.A.
Pres: Mr. Stewart Stockman, M.R.C.V.S.
Vice-Pres: Mr. John Peddie, M.R.C.V.S.
Hon. Treas: Mr. J. H. Bell, M.R.C.V.S.
Hon. Sec: Mr. J. Kirby Pilkington, M.R.C.V.S., Johannesburg

WESTERN COUNTIES V.M.A.
Pres: Mr. A. H. Oliver, M.R.C.V.S., Devonport
Hon. Sec. Mr. W. Ascott, M.R.C.V.S., Bideford
Hon. Treas: Mr. P. G. Bond, M.R.C.V.S., Plymouth
Meetings, Third Thursday, March, July and November

WEST OF SCOTLAND V.M.A.
Pres: Mr. James Weir, F.R.C.V.S., 24 Pollock-st., Glasgow
Hon. Joint Secs: & *Treasrs*: Messrs. Hugh Begg and John R. McCall, Vety. Coll
Meetings, Second Wednesday, May, Oct. and January.

YORKSHIRE VET. ASSOCIATION
Pres: Mr. F. Hallilay, M.R.C.V.S., Dewsbury
Hon. Sec: Mr. J Clarkson, M.R.C.V.S., Garforth, nr. Leeds
Treas: Mr. J. E. Scriven, M.R.C.V.S., Tadcaster